

ATTY DOCKET NO.
13DV-13395-05

DOC. ID
13395-5B

2

In the Claims:

Please amend the Claims as follows:

Claims 1 - 16 (canceled)

Claim 17. (currently amended) A gas turbine engine combustor can assembly comprising:

a combustor can downstream of a pre-mixer;

said pre-mixer having a pre-mixer upstream end, a pre-mixer downstream end and a pre-mixer flowpath therebetween, a plurality of circumferentially spaced apart swirling vanes disposed across said pre-mixer flowpath between said upstream and downstream ends, and a primary fuel injection means for injecting fuel into said pre-mixer flowpath;

said swirling vanes disposed across said pre-mixer flowpath defined between an outer flow sleeve and an inner flow sleeve;

said combustor can having a combustion chamber surrounded by an annular combustor liner disposed in supply flow communication with said pre-mixer;

an annular trapped dual vortex cavity located at said upstream end of said combustor liner and defined between an annular aft wall, an annular forward wall, and a circular radially outer wall formed therebetween;

a cavity opening at a radially inner end of said cavity spaced apart from said radially outer wall and extending between said aft wall and said forward wall;

air injection first holes in said forward aft wall and air injection second holes in said aft forward wall, said air injection first and second holes spaced radially apart;

fuel injection holes in at least one of said forward and aft walls;

ATTY DOCKET NO.
13DV-13395-05

DOC. ID
13395-5B

3

a reverse flow combustor flowpath including, in downstream serial flow relationship, an aft to forward portion between an outer flow sleeve and said annular combustor liner, a 180 degree bend forward of said vortex cavity, and said pre-mixer flowpath at a downstream end of said combustor flowpath.

Claim 18. (currently amended) A combustor can assembly as claimed in claim 17, further comprising:

angled film cooling apertures disposed through said aft wall, said forward wall, and said outer wall,

said film cooling apertures through said aft wall are angled radially inwardly,

said film cooling apertures through said forward wall are angled radially outwardly in a downstream direction,

said film cooling apertures through said outer wall are angled axially aftwardly, and

~~said fuel injection holes and said air injection second holes~~ are disposed through said forward wall, and

~~said air injection first holes~~ are disposed through ~~said aft wall~~.

Claim 19. (original) A combustor can assembly as claimed in claim 18, wherein said primary fuel injection means includes fuel cavities within said swirling vanes, fuel injection holes extending through trailing edges of said swirling vanes from the fuel cavities to said pre-mixer flowpath.

Claim 20. (currently amended) A combustor can assembly as claimed in claim 18, further comprising angled film cooling apertures disposed through said aft wall, said forward wall, said and said outer wall.

ATTY DOCKET NO.
13DV-13395-05

DOC. ID
13395-5B

4

Claim 21. (original) A combustor can assembly as claimed in claim 18, wherein each of said fuel injection holes is surrounded by a plurality of said air injection second holes and said air injection first holes are singularly arranged in a circumferential row.

Claim 22. (currently amended) A gas turbine engine combustor can assembly as claimed in claim 18, further comprising:

a combustor can downstream of a pre-mixer;
said pre-mixer having a pre-mixer upstream end, a pre-
mixer downstream end and a pre-mixer flowpath therebetween, a
plurality of circumferentially spaced apart swirling vanes
disposed across said pre-mixer flowpath between said upstream
and downstream ends, and a primary fuel injection means for
injecting fuel into said pre-mixer flowpath;

said combustor can having a combustion chamber surrounded
by an annular combustor liner disposed in supply flow
communication with said pre-mixer;

an annular trapped dual vortex cavity located at said
upstream end of said combustor liner and defined between an
annular aft wall, an annular forward wall, and a circular
radially outer wall formed therebetween;

a cavity opening at a radially inner end of said cavity
spaced apart from said radially outer wall and extending
between said aft wall and said forward wall;

air injection first holes in said forward wall and air
injection second holes in said aft wall, said air injection
first and second holes spaced radially apart;

fuel injection holes in at least one of said forward and
aft walls;

ATTY DOCKET NO.
13DV-13395-05

DOC. ID
13395-5B

5

angled film cooling apertures disposed through said aft wall, said forward wall, said and outer wall; and

a second stage pre-mixing convoluted mixer located between said pre-mixer and said vortex cavity and including circumferentially alternating lobes extending radially inwardly into said pre-mixer flowpath.

Claim 23. (currently amended) A combustor can assembly as claimed in claim 22, further comprising angled film cooling apertures disposed through said aft wall, said forward wall, said and said outer wall.

Claim 24. (original) A combustor can assembly as claimed in claim 23, further comprising:

said film cooling apertures through said aft walls are angled radially outwardly,

said film cooling apertures through said forward walls are angled radially inwardly in a downstream direction,

said film cooling apertures through said outer wall are angled axially forwardly,

said fuel injection holes and said air injection second holes are disposed through said aft wall, and

said air injection first holes are disposed through said forward wall.

Claim 25. (original) A combustor can assembly as claimed in claim 24, wherein each of said fuel injection holes is surrounded by a plurality of said air injection second holes and said air injection first holes are singularly arranged in a circumferential row.